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SUBJECT: BIOFUEL IN VIETNAM: ENERGY SAVER BUT NOT ENERGY SAVIOR

REF: A) HCMC 171 B) HCMC 661

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¶11. (SBU) Summary: The central and southern provinces of Vietnam are rich in agricultural resources and faced with a growing energy crunch, suggesting to many that biofuel could be an important 'green component' to the GVN's overall energy strategy. However, the biofuel industry is still nascent in Vietnam and there are key challenges that will limit its proliferation: proven ethanol sources such as cassava and sugarcane present controversial food security trade-offs while second generation sources, such as the region's abundant rice hulls, are still prohibitively expensive to extract and convert into biofuel. Although biodiesels such as jatropha oil hold promise, they remain untested at commercial scale. Vietnam's best prospects for biofuel remain in the pilot project stage, or on paper only, with Vietnamese experts looking to the United States for inspiration, expertise and the technological breakthroughs that will make the economics work in Vietnam. End summary.

American Companies Help Biofuel Projects Take Baby Steps

¶12. (SBU) Eight major ethanol projects are underway in the central and southern provinces of Vietnam, most using cassava and sugarcane for raw material, according to HCMC biofuel experts. Dong Xanh joint stock in the central province of Quang Nam is the only one that is fully operational. In addition, a few other projects have begun producing biodiesel on a small scale. Foreign companies, including U.S. based firms, are leading the charge with technology and initiative. For example, Virginia-based Delta T is teaming up with Petro Vietnam for a biofuel project in Phu Tho province (the only approved project in the North), aimed at creating domestic biofuel to reduce gasoline imports and carbon emissions. American-run Green Energy is testing jatropha's potential (Ref A) in coastal Ninh Thuan province. Other U.S. companies like Superior Biotechnologies Corporation and Nature's Fuel are exploring local possibilities.

¶13. (U) Unmet demand for electricity and Vietnam's evolving regulatory framework make biofuel opportunities attractive to many western investors. Demand for energy is estimated to grow between 15 and 20 percent per year until 2020, while capacity will only grow at 10 percent, compelling GVN to develop new energy sources. Investors in the southern key economic zone are

hoping that the 2007 National Biofuel Development project will help ease the energy crunch. Under the plan, biofuels should account for five percent of Vietnam's annual energy needs by 2015 and to get there, the GVN offers biofuel investors tax exemptions, preferential land lease terms of over 20 years, and low import duties for material and equipment.

First Generation Fuels Are a Bad Food Security Trade-Off

¶14. (SBU) Although the GVN has an overarching policy for biofuel development, it still lacks specific plans about land use for biofuel production, according to Dr. Nguyen Quoc Binh, Executive Vice Director of the HCMC Biotech Institute, especially policies that balance production for ethanol versus production for food crops. Dr. Huynh Kim Tuoc, Director of the Tropical Biology Institute (TBI) noted the opportunity costs associated with using traditional food sources as biofuel, such as their potential threat to food supplies and biodiversity. He noted that while food security is not yet an imminent issue, it is something that should be considered early on to avoid problems down the road.

¶15. (SBU) With its low cellulose and high starch content, Dr. Binh promoted cassava as the food crop most suitable for ethanol production in Vietnam. Dr. Duong Hoa Xo, director of the HCMC Biotech Institute, also noted several advantages to cassava as an ethanol source: cassava already occupies large plantation areas in the Central Highlands, requires less water than many crops, and yields higher ethanol per ton than other food stocks such as sugarcane. Additionally, cassava processing waste can also be used for ethanol. However, in addition to general food

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security concerns, scientists at the Tropical Biology Institute (TBI) noted that cassava cultivation damages the land, making it difficult for farmers to substitute other crops such as rice and vegetables. Also, Dr. Binh noted that increasing demand for cassava in ethanol production would lead to a jump in domestic animal feed prices.

¶16. (SBU) Sugarcane is another crop which has been successfully used to produce biofuel in other countries and is also in the works for Vietnam. However, when asked about sugarcane's potential as an ethanol source in Vietnam, Dr. Xo said he is skeptical, particularly because Vietnam is a net importer of sugar (most from Thailand) and doesn't produce sufficient quantities to meet domestic consumption. Also the price and consumption of sugar are volatile. In order to put additional land into sugar cultivation, farmers would have to shift land away from rice cultivation, where Vietnam enjoys more of a comparative advantage in international markets. Already companies producing locally in Vietnam, such as Coca Cola and Nestle, have a difficult time accessing reasonably-priced sugar (Ref B). The short supply of sugar hasn't stopped Opus Securitas VN from investing in factory in Quang Ngai province to produce up to 160 million liters of ethanol per year, according to Dr. Xo.

Unlocking Second Generation Biofuel Potential

¶17. (SBU) Because of its ability to flourish on marginally productive lands that cannot support food crops, jatropha has been heralded as an ideal biofuel source for Vietnam (reftel A). However, Dr Du, a jatropha expert at TBI, explained that there

is still insufficient evidence that jatropha will be profitable as a biodiesel source. He noted that although the crop was introduced to Vietnam in 2006, there won't be conclusive evidence about the best yield potential or appropriate planting varieties for at least a couple more years. Dr. Xo was even more dubious about jatropha production, stating unequivocally that "jatropha is not good for the long term" because farmers get a very low profit and can grow other crops much more efficiently and profitably. He added that land issues are a challenge even when the land is considered marginal, highlighting that "Vietnam is not Australia" when it comes to land per capita. Even in areas like Binh Thuan and Ninh Thuan with poor quality soil, he continued, there is just not enough land to go around, and provinces could plant trees in those areas proposed for jatropha that would be better used to prevent desertification.

¶ 8. (SBU) In the process of harvesting 40 million tons of rice annually, Vietnam also produces 100 million tons of rice hulls, ideally positioning the country -- and the Mekong Delta in particular -- to produce ethanol extracted from rice hulls. However, because cellulose content is high in such second generation biofuel sources, transforming it into ethanol is more complicated and expensive than highly starchy food crop sources like cassava. Rice hulls also have some commercial value as a fuel for low-tech industries like brick-making. TBI experts said that with appropriate technology Vietnam could produce million of tons of biomass ethanol per year, but it currently lacks the technology to produce it in a cost effective manner. Dr. Binh noted that in the U.S. where extractive technology exists, ethanol derived from biomass averages about USD 1.3 per liter - far above the price of gasoline. Until technology is advanced enough to make it profitable, second generation biomass sources are unlikely to be tapped into on a large scale.

Catfish Waste Tested on Small Scale

¶ 9. (SBU) Catfish flourish in the Mekong Delta region and using their waste as a biodiesel source has piqued public and private interest. However, considering fish waste only has a 25 percent fat content, said Mr. Xo, even if waste for all 100 million tons of catfish could be used, the maximum converted into biodiesel would be a relatively small 250,000 tons a year. On a micro scale, however, catfish shows better potential and there are

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currently a few projects in the works. Hiep Thanh Corporation has a fish waste-to-biodiesel project underway with Finnish support, and another, Minh Tu Corporation, is already operational. TBI scientists said the Finnish would like to set up mobile stations to produce biodiesel on the same sites that fish are processed; however, it requires expensive waste treatment equipment. Currently, processors prefer to convert catfish fat into fish feed since it offers a higher price than using it for biofuel.

Comment

¶ 10. (SBU) The biofuel story in central and southern Vietnam consists of two competing narratives: as an industry it's beset by problems of scale, efficiency and viability; but at the micro-level, individual companies and projects forge ahead to their immediate advantage. While a fish processor can't produce enough biodiesel to fuel the Mekong Delta, it does reduce the company's fuel bill significantly. At the macro level, while a national plan is in place and there is some forward movement,

Vietnam still has a long road ahead to develop its biofuel potential. U.S. involvement is key because HCMC's experts are convinced that second general biomass is a viable fuel source if they can get appropriate technology transfer, capacity building and research, much of which will need to come from foreign partners. Scientists expressed keen interest in greater cooperation with U.S. scientists to further develop Vietnam's potential in this arena.

T11. (U) This cable was coordinated with Embassy Hanoi
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